UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Fort Worth, Texas 76193-0100

In matter of the petition of MCDONNELL DOUGLAS HELICOPTER SYSTEMS for an exemption from § 27.1(a) of Title 14, Code of Federal Regulations	Regulatory Docket No. 010SW

GRANT OF EXEMPTION

By letter dated October 18, 1995, McDonnell Douglas Helicopter Systems (MDHS), 5000 East McDowell Road, Mesa, Arizona 85215-9797, petitioned for an exemption from § 27.1(a) of Title 14, Code of Federal Regulations (14 CFR), to the extent necessary to increase the maximum gross weight of the MD900 Helicopter from 6,000 pounds to 7,000 pounds while maintaining the original normal category rotorcraft certification.

The petitioner requests relief from the following regulations:

> Section 27.1(a) prescribes, in pertinent part, that the maximum weight of a normal category rotorcraft is 6,000 pounds.

The petitioner supports its request with the following information:

> The petitioner referenced a 1991 petition for this same exemption that the FAA had denied due to industry comments that increasing the maximum weight limit for normal category rotorcraft needed careful study by all affected parties.
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> Since that time, a significant amount of public debate and careful study involving all affected parties has occurred. In February 1994 the FAA held a public meeting in Anaheim, California, to discuss this issue. Based on this meeting, the FAA and the Joint Aviation Authorities (JAA) agreed that

there was a demonstrated need to review the normal category gross weight applicability limit. This agreement resulted in the tasking of an Aviation Rulemaking Advisory Committee (ARAC) Harmonization Working Group to address this subject. This ARAC working group, known as the Gross Weight and Passenger Issues for Rotorcraft Working Group (GWWG), first met on February 1 and 2, 1995, in Las Vegas, Nevada.

The GWWG membership includes representatives from all parties that have expressed an interest in this subject either formally, through submittal of comments to Federal Register notices, or informally through the public meeting process. Interests from the U.S. rotorcraft Industry, the European rotorcraft industry, the FAA and the JAA are represented by the GWWG members. After three working group meetings, the group reached a consensus on a concept for revising 14 CFR part 27 to increase the maximum gross weight limit to 7,000 pounds. Helicopters exceeding 6,000 pounds or seven passengers would have to comply with the 14 CFR part 27 amendment equivalent to Joint Aviation Requirements (JAR) 27 Issue 1 plus seven additional passenger safety related regulations identified in the GWWG Concept Paper.

The petitioner states that the current Model MD900 design will comply with JAR 27 Issue 1 and with the additional seven passenger related safety requirements proposed to be added to 14 CFR part 27. Thus, the MD900 will meet the GWWG agreed upon criteria for the new 14 CFR part 27 regulation which would allow the maximum weight to increase.

Further, the petitioner states that favorable consideration of this exemption by the FAA will provide substantial benefits to the public. The MD900 incorporates such features as dynamic crash-attenuating seats for all passengers, a crashworthy fuel system, compliance with increased fire safety standards, and compliance with the most recent requirements for both HIRF and lightning protection. These design features ensure that the MD900 provides the highest safety for normal category rotorcraft operators and users. However, to provide all the options and equipment necessary for the public to effectively employ this new helicopter, the maximum weight limit of the MD900 needs to increase above 6,000 pounds. By granting this request for exemption, the FAA will make it possible for more segments of the industry to utilize a rotorcraft that

meets substantially higher safety standards than existing Normal Category rotorcraft. The increased utilization potential provided by granting this petition, thus allowing the MD900 to achieve full mission capabiliity, will result in a significant benefit in terms of increased safety for the traveling public and to the general populace who depend on these rotorcraft for such critical missions as Emergency Medical Service (EMS) and Search and Rescue (SAR) operations.

Further, the petitioner states that through the efforts of the GWWG, all interested parties have now had the opportunity to carefully study the requirements for increasing the normal category rotorcraft maximum weight limit. All parties have agreed on the criteria and additional requirements that should be considered. For this reason, the petitioner submits that the principal reasons for denial of the 1991 petition for exemption for the MD900 have now been addressed and resolved. The petitioner also states that favorable consideration of this exemption by the FAA will provide substantial benefits to the public.

Finally, the petitioner states that unfavorable consideration of this request for exemption by the FAA could result in restricting the potential uses of the MD900, denying the public the opportunity to take advantage of the higher safety standards and newer technology the MD900 can provide. By granting this request for exemption, the FAA will make it possible for more segments of the industry to utilize a rotorcraft that meets substantially higher safety standards than existing normal category rotorcraft. The increased utilization potential provided by granting this petition, thus allowing the MD900 to achieve full mission capability, will result in a significant benefit in terms of increased safety for the traveling public and to the general populace who depend on these rotorcraft for such critical missions as Emergency Medical Service and Search and Rescue operations.

A summary of this petition was published in the Federal Register on November 8, 1995 (60 FR 56385), and no comments were received.

The FAA's analysis/summary is as follows:

The FAA has reviewed the facts and data presented by MDHS in support of this petition and has determined that a grant of the requested exemption is appropriate and justified.

Since 1956 the FAA has based the distinction between normal and transport category rotorcraft certification requirements on the maximum certified gross weight of the aircraft. At the time of rulemaking, there were two major weight groupings of civil helicopters: one group was in the 2,000 to 3,000 pound range; the other group was in the 7,000 to 8,000 pound range. The upper weight limit for normal category rotorcraft was set at 6,000 pounds based on the spectrum of existing and anticipated designs. Safety-based design requirements and associated certification costs are dramatically higher for a transport category helicopter. Therefore, the regulatory intent in 1956 was to establish a reasonable gross weight limit for normal category, which would permit growth of existing models while providing a stable set of weight-based design criteria for new models. The 6,000-pound weight threshold (and associated safety-based design standards) has served the industry well for over 35 years. However, several operational and design trends have developed over time that have prompted a reevaluation of the current 6,000-pound weight limit. Today, helicopters are flying missions that were never envisioned in 1956. Helicopters are flown at higher altitudes, with more extreme temperatures and over longer distances than helicopters were capable of when the 6,000-pound limitation was established. More powerful engines and improved drive systems have been developed that allow these improvements with an increased payload/passenger carrying capability.

Additionally, the FAA certification regulations have evolved, gradually adding more stringent safety requirements that ultimately cause permanent increases in empty weight. In spite of the long standing 6,000-pound normal category regulatory weight limit, the high cost of certification in transport category and the trend toward modification of existing models have resulted in several normal category helicopters nearing the current 6,000-pound gross weight ceiling.

Prior to November 1991 when MDHS filed a petition for exemption, increasing the 6,000-pound weight limit for the

normal category had never been formally discussed. A summary of that petition was subsequently published in the Federal Register (57 FR 4508) on February 5, 1992, for public comment. Only three responses from industry were received. While one respondent was in favor of the petition, the others expressed the view that a weight change should not be permitted without considering increased regulatory stringency or a limit on the number of passengers.

While the FAA denied that petition for a variety of technical reasons, the FAA's Rotorcraft Directorate decided to investigate the general issue of a future rule change in more detail by asking interested parties to comment on the advisability of increasing the current 6,000-pound maximum weight limit. They were also asked to comment on safety-based design criteria that should be associated with such a change. Approximately 30 letters were received in response to the request. Although there were no specific objections to a future regulatory increase in the maximum allowable weight, the industry and other aviation authorities articulated a wide range of views regarding the scope of such a revision.

The FAA held a public meeting in February 1994 to determine a course of action that was in the best interest of the public and the aviation community. The public interest in this area was confirmed at that time, and the ARAC GWWG was established with representatives from the FAA, JAA and TCA, as well as United States and European helicopter manufacturers. This GWWG was established in February 1995 and tasked to recommend new or revised requirements for increasing the gross weight and passenger limitations for normal category rotorcraft. To date, the GWWG has met five times. The GWWG representatives have tentatively agreed to increase the gross weight limitation of 14 CFR Part 27 to 7,000 pounds, with the possibility of some increased stringency for helicopters certified with eight or nine passengers. The FAA has reviewed the findings of the GWWG and has decided that the need (identified in the initial denial) for a careful study involving all affected parties has been satisfied. Based on these findings,the FAA anticipates a rule change to increase the maximum gross weight limit for normal category rotorcraft to 7,000 pounds

and require increased design standards similar to those that the petitioner will meet.

Although the MD900 is not the only helicopter to meet the FAA's most recent safety standards, it is one of only a few to meet these anticipated increased design standards. The MD900 is a helicopter that meets a later and more stringent regulation than many other normal category helicopters. Meeting these anticipated increased design standards has increased the level of safety and has also increased the gross weight to near the 6,000-pound limit assuming the payload capacity remains constant. A 1,000-pound increase in gross weight will result in improved mission performance without causing a decreased level of safety to the pilot or passengers. The FAA has determined that this increase in gross weight will be of benefit to the public by allowing an expansion of the mission capability (improved payload, range, etc.) of this helicopter. This should be particularly beneficial to operatiors of air ambulances, etc.

In consideration of the foregoing, I find that a grant of exemption would be in the public interest and would not have an adverse affect on safety. Therefore, pursuant to the authority contained in 49 U.S.C. §§ 40113 and 44701, formerly §§ 313(a) and 601(c) of the Federal Aviation Act of 1958, as amended, delegated to me by the Administrator (14 CFR § 11.53), McDonnell Douglas Helicopter Systems is hereby granted an exemption from 14 CFR §§ 27.1(a) to the extent necessary to allow MDHS to increase the maximum gross weight of the MD900 from 6,000 pounds to 7,000 pounds while maintaining the original normal category rotorcraft certification. This exemption is subject to the following conditions and limitations:

1. The design of the helicopter cannot be changed to increase passenger-carrying capability as part of the gross weight increase.

2. Prior to exercising the privileges of this exemption, each MD900 helicopter (for which exemption is sought) and all modifications made to it must meet the requirements established in the current certification basis, at the increased gross weight. This includes any special requirements for certification; i.e., equivalent levels of

safety and special conditions that may have been issued to complete certification.

3. Compliance with 14 CFR Part 36, Appendix H requirements must be shown at the increased gross weight.

4. A method must be in place to ensure that any life limited components affected by the increase in gross weight are identified. The MD900 Maintenance Manual currently requires that "Life limited components interchanged between models or configurations must be restricted to the lowest service life indicated for the models or configurations affected." This will apply to all MD900's at the increased maximum gross weight, since this increase will constitute a configuration change.

Issued in Fort Worth, Texas, on September 5, 1996.

Eric Bries
Acting Manager, Aircraft Certification Service
Rotorcraft Directorate